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Name of applicant, assignee or registered representative

Signature

12/24/03
Date of Signature

PATENT
Case No. GP-302119
(2760/59)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of:

MAZEN K. ALSLIETY

Serial No.: 10/083,718

Filed: FEBRUARY 26, 2002

Title: MICROSTRIP YAGI-UDA ANTENNA

Examiner:
CHEN, SHIH CHAO

Group Art Unit: 2821

DECLARATION OF INVENTOR UNDER 37 CFR § 1.132

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

I, Mazen k. Alsliety, hereby declare:

1. THAT I am the inventor of the invention disclosed in the present Application bearing serial number 10/083,718.
2. THAT I am a person having skill in the art of designing and testing antennas.
3. THAT antennas of the type disclosed in my patent application should have an input impedance in the range of 50 Ohms ± 10 percent, and ideally exactly 50 ohms, to match commonly utilized feed devices, such as coaxial cables, micro strip transmission lines, or other appropriate feed devices, such as those described at page 7 lines 1-9 of the my patent Application.
4. THAT I have constructed and tested antennas according to the present invention, and have discovered that an antenna constructed according to my invention, with elements having lengths appropriately selected for a given frequency, according to the teachings of my patent application, will exhibit an input impedance within the desired range of 50 Ohms ± 10 percent, and can be made to exhibit exactly 50 ohms at a desired frequency. As a result, an antenna according to my invention does not generally require any special feeding circuits for matching the antenna input impedance.
5. THAT testing and experience have shown that an antenna, according to my invention, also generally provides inherently higher gain than prior similar antennas, without having to add any active components that are required with prior antennas.
6. THAT, several exemplary embodiments of antennas, according to my invention, were constructed and tested with a coaxial cable connected to thin inner ends 30 of dipole elements 28 as shown in the drawing of my patent application.
7. THAT an exemplary embodiment of an antenna, designed for operation at frequency of 5.78 GHz, was constructed as disclosed in the specification, in which the dipole 22 had an overall length 34 of about 0.944 inches, with the inner ends 30 spaced apart a distance 48 of about 0.078 inches. The reflector 26 had a length 32 of about 1.02 inches and had a center 40 spaced 44 about 0.51 inches from the dipole center 38.

The antenna included six directors 26 having a length 36 of about 0.767 inches and further having centers 42 spaced from one another at a distance 46 of about 0.614 inches, with the center 42 of the director 26 adjacent the dipole 22 being spaced 46 about 0.614 inches from the center 38 of the dipole 22. The dipole 22, directors 26 and reflector 24 had a width 50 extending parallel to the substrate axis 18 of about 0.047 inches.

8. THAT when the antenna described in paragraph 7 above was tested with coaxial cable feed arrangement described in paragraph 6 above, the antenna exhibited an input impedance of about 50 ohms and an antenna gain of about 10dBi, without use of any impedance matching provisions or any active devices, thereby illustrating that an antenna according to my invention does not require a special feed circuit or active devices to match the antenna impedance to commonly used feed devices, or to achieve higher gain, as was the case of prior antennas of the type disclosed in my patent application.

9. THAT, on the basis of the testing performed, and from my experience as one having skill in the art, other types of commonly utilized feeds can also be used in an antenna according to my invention, without the need for input impedance matching devices required in prior antennas of the type disclosed in my patent application, and that with such other types of feeds, or for antennas operating at frequencies other than 5.78 GHz, an input impedance of 50 Ohms ± 10 percent can be achieved by judicious selection of the dimensions of the elements of an antenna according to my invention.

I declare that all statements made herein are of my own knowledge are true, and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize that validity of the application or any patent issued thereon.

Signed this 23rd day of December 2003.

Mazen K. Alshery